

**AVAILABILITY AND QUALITY OF GROUNDWATER IN MALWATHU
OYA CASCADE-I, ANURADHAPURA DISTRICT**

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Groundwater is a vital source in dry zone agriculture due to limited availability of surface water. Agro-wells are extensively used in dry zone agriculture, without any assessment on quality and quantity. A study was conducted to evaluate availability and quality of groundwater in *Malwathu Oya* cascade-I. Twenty agro-wells were selected purposely and water quality parameters such as pH, Electrical Conductivity (EC),

Total Dissolved Solids (TDS) and concentration of Sodium (Na⁺), Potassium (K⁺), Calcium (Ca²⁺) and Magnesium (Mg²⁺) were analyzed. Sodium percentage (Na%), Sodium Adsorption Ratio (SAR) and Residual Sodium Carbonate (RSC) were calculated using measured parameters. Eighty five percent of wells had very high groundwater potential, while 10% and 5% had high and moderate groundwater potential respectively. All wells had good quality water for irrigation based on pH (6.5 - 8.4). Forty five percent of agro-wells recorded low salinity level while others recorded moderate salinity level. SAR values varied from 1 to 8 indicating that, all wells were suitable for irrigation for all types of soils. Average RSC values showed 95% wells with good quality water (RSC < 1.25) while 5% had doubtful condition (>1.25). Na% data showed that, 35%, 55% and 10% of wells had excellent, good and permissible irrigation water quality respectively. Measured water quality parameters indicated that, 45%, 55% and 5% of agro-wells had good, permissible and doubtful quality for irrigation respectively.

Key words: Agro-well, Groundwater potential, Irrigation water quality, *Malwathu Oya* cascade-I, SAR